

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

April

1983

Volume 4, Number 1

aS622.S6

Soil and Water Conservation News

LIBRARY
File Code

United States Department of Agriculture
Soil Conservation Service



Soil and Water Conservation News is the official magazine of the Soil Conservation Service. The Secretary of Agriculture has determined that publication of this periodical is necessary in the transaction of public business required by law of this Department. Use of funds for printing *Soil and Water Conservation News* has been approved by the Director of the Office of Management and Budget through January 31, 1987. *Soil and Water Conservation News* (ISSN-0199-9060) is published 12 times a year. Postage paid at Washington, D.C.

Magazine inquiries

Send inquiries to: The Editor, *Soil and Water Conservation News*, Public Information Staff, Soil Conservation Service, U.S. Department of Agriculture, P.O. Box 2890, Washington, D.C. 20013.

Subscriptions

Send subscription orders to: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

Comments:

From the SCS Chief

RCA Program Calls for More Targeting

Publication of a National Program for Soil and Water Conservation less than 4 months ago leaves no doubt about USDA conservation priorities and planned activities. Mandated by the Soil and Water Resources Conservation Act of 1977, or RCA, the program follows 5 years of healthy discussion and debate by USDA and White House agencies, together with the advice and comments of thousands of farmers and other interested Americans.

The RCA discussions made it clear that it was time for the Department's conservation agencies to establish national priorities to guide us through the years 1983 to 1987. That is what the RCA program does.

The first RCA priority is to reduce excessive soil erosion on crop, range, pasture, and forest lands. The second priority is to conserve water used in agriculture and to reduce flood damage in upstream areas.

In line with these priorities, the RCA program calls for new or redirected Department activities to encourage farmers and ranchers to apply more soil and water conservation to their land. One of these activities is targeting more funds and people to areas where productivity is threatened by soil erosion or water problems, while maintaining a base level of assistance in other areas. Agencies most involved in targeting are the Soil Conservation Service and the Agricultural Stabilization and Conservation Service.

By the end of 1982, the two agencies had completed more than 1 year of targeting in 15 States. The results were very encouraging. We found that zeroing in on the Nation's most serious resource problems puts more conservation on the ground per tax dollar invested.

I like what Secretary of Agriculture John Block said about targeting in a recent talk: "It makes good sense to spend a little more where the problem is the worst."



Cover: Geese at sunrise. Waterfowl are among the many kinds of wildlife that benefit from Soil Conservation Service assistance to land users in improving wildlife habitat. See articles on pages 10 and 11. (Photo, Tim McCabe, visual information specialist, Public Information, SCS, Washington, D.C.)

John R. Block
Secretary of Agriculture

Peter C. Myers, Chief
Soil Conservation Service

All programs of the U.S. Department of Agriculture are available to everyone without regard to race, creed, color, sex, age, or national origin

Editor, Judith E. Ladd

Associate Editor, Nancy M. Garlitz

Assistant Editor, Donald L. Comis

Editorial Assistant, Ann P. Serota

Design Consultant, Christopher Lozos

Reprint permission

Contents of this magazine may be reprinted without special permission. Mention of source is requested. Photos available on request.

Commercial names

Mention of commercial enterprises or brand names does not constitute endorsement or imply preference by the U.S. Department of Agriculture.

News Briefs

From Dust Bowl Days to PIK—A Hard Look at Conservation

More than 1,700 people took a closer look at future approaches to conservation programs and practices at the 37th convention of the National Association of Conservation Districts (NACD) in New Orleans, La. About 100 speakers addressed a variety of conservation topics in 27 separate discussion forums during the February 6-10 meeting.

Highlights included introduction of the new Conservation Tillage Information Center and business conducted by NACD's national committees.

Delegates also heard Senator Jennings Randolph of West Virginia describe debate about the soil conservation act of 1935—the basic legislation that established the Soil Conservation Service and that committed the U.S. Government to a policy of soil conservation. Senator Randolph is the only current member of Congress who was serving during passage of the 1935 legislation.

Keynote speaker was North Dakota Governor Allen I. Olson, chairman of the Soil Conservation Task Force for the National Governors Association, who cited broad agreements with conclusions drawn during activities required by the Soil and Water Resources Conservation Act of 1977.

"The Nation's Governors are in complete agreement with the report's first long-term objective to develop a program that will lead toward non-degradation of the Nation's soil and water resources," Olson said. "As we know from history of the Dust Bowl days of the 1930's, soil can deteriorate quickly if not properly managed."

Olson cautioned that "we cannot afford to be lulled by the huge yet temporary surpluses that plague our farm economy. . . and have to view our national resource needs with a sense of

urgency that is inherent in the qualities of sound stewardship."

In his annual address to delegates, NACD President Milton "Bud" Mekelburg called for expanding soil and water conservation provisions of USDA's payment-in-kind (PIK) proposal designed to reduce surplus farm products.

Secretary of Agriculture John R. Block has introduced the PIK approach to help improve the Nation's farm economy by encouraging farmers to take land out of production in exchange for payments of stored surplus agricultural commodities.

A conservation tie-in to plans to hold land out of production is essential, according to Mekelburg, because of the need to assure that land set aside is protected from soil erosion.

Mekelburg also called for the concept to be extended to help finance expensive onfarm conservation measures such as terraces—an approach that would help "get more commodities out of the warehouses, more dollars into the farm economy, and more conservation on the land," he said.

Progress at controlling and preventing soil erosion by American farmers was noted by another speaker, Robert A. Hanson. Hanson, president and chief executive officer of Deere & Co., said that increasing adoption of conservation tillage implements and techniques should be recognized as a major accomplishment in erosion control efforts.

Hanson told delegates he recommends a careful approach in determining the severity of the Nation's soil conservation needs, the effect on future agricultural productivity, and the cost of correcting excessive soil erosion.

NACD is a nongovernmental organization that represents the more than 3,000 local conservation districts throughout the 50 States, Puerto Rico, and the Virgin Islands.

Charlotte Nichols,
director of communications, National Association of Conservation Districts, Washington, D.C.

Hank Wyman,
public affairs specialist, SCS, Davis, Calif.

SCS Sees Red With High Altitude Photography

Contractors for the National High Altitude Photography (NHAP) Program are producing color infrared aerial photographs of the Nation, as well as black-and-white photographs, at a rate of more than 50 counties a month.

Contracts have been awarded for 79 percent of the continental United States, and almost 900 counties have been photographed, with the rest of the Nation expected to be completed by 1985.

The NHAP effort began as a result of a remote-sensing user requirements study by several U.S. Department of Agriculture agencies. Remote-sensing experts from USDA, universities, and other Federal agencies assessed those needs and the ways remote sensing could satisfy them. The remote-sensing experts found that color infrared aerial photography could meet more than twice as many of those needs as black-and-white photography could. Agencies from several Federal Departments agreed to jointly fund the NHAP Program and the U.S. Department of the Interior's Geological Survey awarded the first contract in 1980.

Soil Conservation Service Remote Sensing Specialist Olin Bockes says, "The human eye can detect and discriminate only 13 shades of gray, but it can discriminate about 30,000 shades of colors." Black-and-white aerial photography works very well for mapmakers who need to recognize only shapes such as roads and powerlines. But environmental concerns in the late 1960's and early 1970's led to a need to assess natural resources, which can best be identified by color rather than shape.

For these reasons, Bockes and other experts found that normal color aerial photography would meet a few more needs than black-and-white photography. But because of the response of vegetation and water to invisible infrared light, color infrared photography is far more useful than

normal color photography. Vegetation strongly reflects infrared light, which shows as red on infrared color film; and the healthier the vegetation, the more brilliant the red. Water absorbs all infrared light so it appears black.

Bockes says soil surveyors can predict more about soils from color infrared photographs than from the black-and-white photographs surveyors have been penciling soil maps onto since SCS began. For example, SCS can spot wet soil by looking for dark areas and saline areas by looking for the lighter shades of red of damaged vegetation.

Another advantage infrared color photography has over normal color photography is that the film produces blue color without blue light so photographers can use a filter on the camera lens that eliminates blue light. This is important for high altitude aerial photography because the atmosphere scatters blue light and causes a haze in normal color photographs.

The U.S. Department of Defense used color infrared aerial photography in World War II to separate the dark colors of camouflage vegetation hiding enemy tanks from the brilliant red of the living vegetation around the tanks. Color infrared aerial photography was not widely used after World War II because of high cost and technical problems, but it is much more common now because the technology has advanced at the same time the Nation's needs have changed.

Airplanes are now able to fly much higher than they could during World War II so aerial photographers can photograph larger areas. The NHAP planes fly at 40,000 feet. Each plane has two cameras, one for black-and-white photography and one for infrared.

Bockes says the NHAP photographs can be used for many things such as the U.S. Census and the National Resources Inventory. The more frequent the flights, the more data can be collected. If the photographs are taken annually, they can be used for crop inventories, snow surveys, and water supply forecasts, for example.

By pooling its funds with other departments, USDA is photographing the Nation twice as fast and at a lower cost than when it was doing the work by itself. Photographs for the completed counties are now available and are being used in several States.

Bockes says there are still problems to be solved. For example, the color photographs are not as easy to write on with a pencil as black-and-white photographs are, because of the paper used, and the photographs might get sticky under very wet conditions.

Bockes is confident that the problems will be overcome and thinks the biggest obstacle may be the reluctance of people to give up their familiar view of the world for an infrared view.

Donald L. Comis,
assistant editor, *Soil and Water Conservation News*,
SCS, Washington, D.C.

Four Named to USDA's National Rural Development Council

Secretary of Agriculture John R. Block has named four new members to the National Advisory Council on Rural Development.

They are: Charles H. Allen, a livestock producer and civic leader of Sinks Grove, W. Va.; Lowell C. Johnson, a North Bend, Nebr., businessman and member of the State legislature; Mildred Elliott, of Mount Ayr, Iowa, a farm manager and member of the Iowa Real Estate Commission; and Berta Lee White, of Bailey, Miss., chair of the American Farm Bureau Women's Committee and a former member of the Mississippi legislature.

Block said the council will assist him in "identifying rural problems and in supporting Administration efforts in rural development. It also will provide State and local rural development groups with a forum for the discussion of important issues."

University of Idaho to Publish Journal

The College of Forestry, Wildlife, and Range Sciences and the Laboratory of Anthropology at the University of Idaho have announced the joint publication of *Women in Forestry*, a journal for women who work in cultural and natural resource management.

The quarterly journal will provide information and ideas for, from, and about women on topics related to the forestry profession and associated social science fields, the use and conservation of natural and cultural resources, and issues of administration and personnel of special interest to women in natural resources.

The editors of the new publication are soliciting contributions regarding the factual, personal, and philosophical aspects of the natural resources profession. Each issue will contain editorials, book reviews, articles, letters, comments, calendar events, and job information.

The first issue of *Women in Forestry* will appear in spring 1983. Questions or contributions should be directed to Molly Stock, Editor, *Women in Forestry*, Department of Forest Resources, University of Idaho, Moscow, Idaho 83843, or call (208) 885-6444.

Number of Women Farmers Increases

USDA's Economic Research Service recently reported that one in every 20 farms is now operated by a woman. The 1978 Census of Agriculture showed that women are the sole or principal operators of 128,000 farms, or just over 5 percent of all farms. The U.S. Department of Labor reports that the number of women working principally as farmers or farm managers doubled from 1970 to 1980.

Conservation Highlights 1982

Summary of Activities of the Soil Conservation Service for Fiscal Year 1982

The Soil Conservation Service of the U.S. Department of Agriculture plans and carries out programs for protecting and developing the Nation's soil, water, and related resources. The help SCS provides is technical and in some cases financial.

The SCS mission covers three major areas: soil and water conservation, natural resource surveys, and rural community protection and development. To carry out its mission, SCS has a network of conservation specialists.

Through locally organized conservation districts, SCS provides technical assistance to help individuals, groups, organizations, and units of government conserve soil and water resources.

Highlights of SCS soil and water conservation activities during fiscal year 1982 follow.

Agricultural Conservation Program

Through the Agricultural Conservation Program (ACP), SCS provided technical assistance to 9,000 farmers and ranchers who installed enduring conservation practices on their land through long-term agreements. Under ACP, 689,000 acres benefited from irrigation water conservation measures and 427,000 acres benefited from terrace systems. Farmers also applied conservation tillage to 733,000 acres. The Agricultural Stabilization and Conservation Service (ASCS) administers ACP and provides financial assistance to landowners.

SCS provided soil loss data to ASCS to determine which counties had the most severe soil erosion problems and should receive increased cost sharing under a pilot variable cost-share program. From the 72 counties approved, ASCS received 5,000 applications.

Targeting

By targeting funds and people to the Nation's most serious natural resource problems, SCS, ASCS, and other USDA agencies helped to reduce soil erosion and save water in more than a dozen States where losses have been extremely high. During 1982, the program's first full year, erosion-targeted areas lost an estimated 3.5 million fewer tons of soil than in previous years. In the West, irrigation farmers in targeted areas saved 130,000 acre-feet of water.

Conservation Tillage

U.S. farmers used various forms of conservation tillage, including no-till, on an estimated 100 million acres of cropland in 1982, compared to just 4 million acres 20 years ago. About 11.5 million acres was no-till, according to *No-Till Farmer*. SCS gives technical assistance to farmers using these modern tillage practices which save fuel, soil, and moisture.

SCS also cooperated with the National Association of Conservation Districts in establishing the Conservation Tillage Information Center in Ft. Wayne, Ind.

Great Plains Conservation Program

In the 10 Great Plains States, 700 farmers and ranchers signed long-term contracts to apply permanent conservation measures on 1.4 million acres, bringing the total acreage covered to date under Great Plains Conservation Program (GPCP) contracts to 115 million. During fiscal year 1982, contracts were completed on 3.4 million acres.

Through GPCP, SCS provides technical assistance and cost sharing to landowners to minimize the hazards of recurring drought and wind and water erosion.

Range

Besides helping ranchers design planned grazing systems, SCS range conservationists evaluated the effects of the systems—especially intensive grazing systems—on soil, water, and plant communities and animal production. To update the 1982 National Resources Inventory, range conservationists determined range condition and trend, grazing level, and conservation needs on nonfederal rangeland. SCS conducted training for range conservationists during the year in brush management, especially by prescribed burning, and in planned grazing systems.

Windbreaks

Windbreaks protect cropland from wind erosion, save energy, and provide wildlife habitat. An estimated 2,500 miles of field windbreaks are planted with SCS assistance annually.

Resource Conservation and Development Areas

In fiscal year 1982, work continued in the 194 areas authorized for assistance under the Resource Conservation and Development (RC&D) program. Objectives of the program, led by SCS, are to improve, for residents, the condition and use of the RC&D areas' natural resources, environment, and economic, cultural, and recreational opportunities.

Rural Development

In fiscal year 1982, SCS assisted 28,000 units of government in rural communities to control flooding, reduce roadside erosion, improve the landscape, and preserve historical and cultural resources. As a result of this assistance, rural communities gained rural, municipal, and industrial water supplies; irrigation water; and recreation areas. They also increased agricultural productivity and protected prime, important, and unique farmlands.

In cooperation with other USDA agencies and the Rural Governments Coalition, SCS planned and conducted rural development workshops for locally elected officials. Also with other agencies, SCS assisted with the New Full-Time Family Farmer and Rancher Development Project, various small farm projects, and special conservation projects funded by the Agricultural Stabilization and Conservation Service. SCS conducted five regional workshops on land use and rural development for SCS field personnel.

Farmland Protection

The Farmland Protection Policy Act of the Agriculture and Food Act of 1981 designates SCS to develop criteria for all Federal agencies to avoid unnecessary conversion of farmland to other uses. The completed criteria will be published in the Federal Register and public comment will be invited.

In 1982, hundreds of local and State governments used a new computerized Land Evaluation and Site Assessment (LESA) system developed by SCS to determine which lands should be set aside for agriculture and how to rate them.

Soil Surveys

In fiscal year 1982, 117 soil surveys were published and 73 survey manuscripts with maps were sent to be printed. More than 46 million acres were mapped during the year. SCS reassigned personnel to meet increasing requests from land users and units of government for assistance in interpreting soil survey information to manage and conserve the soil.

Soil Research

As part of a 6-year research program—Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing (AgRISTARS)—USDA and four other Federal agencies worked on developing methods of forecasting crop production and inventorying renewable resources. SCS leads the development and testing of new technology for determining soil moisture by remote sensing.

Soil Moisture Monitoring

SCS continued to monitor the eight soil moisture measurement sites that are located nationwide. This was the third year that specialists have taken weekly measurements at the sites by 6-inch increments to a depth of 6 feet during the growing season.

SCS accepted for research testing a remote sensing device which uses the principle of nuclear magnetic resonance to measure soil moisture content in the surface 6 inches.

Resource Inventories

All States have collected data for the 1982 National Resources Inventory (NRI) as required by the Soil and Water Resources Conservation Act of 1977. The fieldwork was completed in fiscal year 1982 and the data are to be released in 1983.

Snow Surveys

In the West, SCS had 479 SNOTEL automated data collection sites in operation by the end of fiscal year 1982. In addition, SCS snow surveyors measured snow and other precipitation, temperature, and soil moisture at 1,600 snow course sites and issued 3,390 water supply forecasts.

Important Farmland Inventory

As authorized by Section 302 of the Rural Development Act of 1972, SCS leads USDA efforts for inventorying the Nation's prime agricultural areas. By the end of fiscal year 1982, SCS

had published important farmland maps, which delineate prime and unique farmland, for about 800 counties. Another 400 maps are nearly completed.

Cartography and Remote Sensing

Because color infrared aerial photographs provide more information on soil, water, and vegetation than black-and-white photographs, SCS, in cooperation with other Federal agencies, has awarded contracts for producing infrared photographs of 79 percent of the continental United States. More than 900 counties have been photographed under the National High Altitude Photography Program.

Plant Materials

SCS plant materials centers released five new conservation plants to commercial seed growers and nurseryowners in 1982. 'Tropic Sunn,' a legume from Hawaii, adds nitrogen to the soil and improves soil tilth. 'Brazos' bermudagrass provides quality forage. 'Indigo' silky dogwood is a shrub used in various kinds of windbreaks and wildlife plantings. 'Oahe' hackberry is a deciduous tree used in farmstead and field windbreaks and wildlife plantings in the northern Great Plains. 'Rincon' fourwing saltbush is an evergreen shrub used for forage in arid rangelands and for rehabilitating depleted rangelands and reclaiming surface mined land in the Intermountain region.

Rural Abandoned Mine Program

SCS administers the Rural Abandoned Mine Program (RAMP), authorized by Section 406 of the Surface Mining Control and Reclamation Act. Through RAMP, SCS provides technical and financial assistance to land users in reclaiming soil and water resources on rural lands adversely affected by past coal mining practices. By the close of fiscal year 1982, the program's fifth year, 322 contracts had been signed. Under those contracts, 192,000 tons of soil erosion had been controlled, 523 safety and health hazards had been eliminated, and water quality had been improved in 42,000 acres of lakes and 133 miles of streams.

Fish and Wildlife

SCS increased its monitoring of the effects that soil erosion reduction practices have on fish and wildlife habitat. The monitoring has led to new ways to maintain and enhance wildlife habitat through soil and water conservation practices, especially conservation tillage and no-till.

Small Watershed Projects

Nineteen small watershed projects were completed, bringing to 564 the number completed since the program began in 1954. These Public Law 566 projects combine conservation measures and structural and nonstructural measures to reduce flood damage and provide agricultural water management, municipal and industrial water, recreation, and wildlife habitat. At year end, there were 139 watersheds in active planning.

River Basin Studies

SCS leads USDA water and related land resource planning assistance to Federal, State, and local governments. In 1982, 54 river basin planning studies were in progress in 45 States, and 9 of the studies were completed. Officials use the studies to plan resource development in a river basin and to mesh upstream watershed projects with conservation measures downstream.

Flood Plain Management

SCS completed 40 flood plain management studies and 75 reimbursable flood insurance studies throughout the Nation under Section 6 of Public Law 83-566. The studies included data on natural and beneficial values served by flood plains and on management alternatives. Local units of government use this information to develop, amend, adopt, and implement flood plain management programs.

Water Quality Management Plans

Under new regulations proposed by the U.S. Environmental Protection Agency, water quality management planning will be maintained with funds made available under section 205 of the Clean Water Act, as amended. SCS will continue to support this activity under the water quality strategy published in December 1982.

Emergency Assistance

Under Section 216 of the Flood Control Act of 1950 and Section 403 of the Agricultural Credit Act of 1978, SCS obligated an estimated \$11 million in watershed emergency assistance to help States repair damage caused by floods and other natural disasters. California received close to \$5 million for removing debris and sediment from streams and stabilizing streambanks after a January 1982 storm caused flooding, landslides, and extensive soil erosion. Connecticut received about \$3 million to remove debris from streams and stabilize streambanks and reservoir bottoms where seven dams gave way during a storm in June.

Colorado River Basin Salinity Control Program

Under Public Law 93-320, SCS is cooperating with ASCS and Extension Service to reduce salt loadings to the Colorado River. SCS is providing technical and financial assistance to landowners in the 65,000-acre Wellton-Mohawk Irrigation District in Arizona to improve onfarm irrigation water management. A total of 26,400 acres have been adequately treated to date. Overall irrigation efficiency has increased from an average of 55 percent to 80 percent.

In other parts of the Colorado River Basin, SCS completed irrigation studies on the Virgin Valley area in Nevada and Arizona and the McElmo Creek area in Colorado. USDA also continued technical assistance and cost-share support in the Uinta Basin, Utah, and Grand Valley, Colo. These two projects have reduced annual salt loads to the Colorado River by an

estimated 29,000 tons. Primary practices installed include land leveling, water control structures, ditch lining, pipelines, irrigation systems, and onfarm water management.

Socioeconomic Impact Assessments

SCS reviewed 10 draft and 6 final watershed environmental impact statements to assess socioeconomic impacts. SCS also led a study in an urban watershed to assess people's views of SCS-supported projects or activities.

SCS continued to assist in evaluating the socioeconomic impact of five watershed projects. SCS also entered into two cooperative research agreements with State land-grant universities to determine the socioeconomic factors affecting the adoption of soil and water conservation practices.

Cultural Resources Activities

To increase the quality and reduce the cost of cultural resources considerations in agency activities, SCS trained personnel in identifying cultural resources, provided technical assistance to State offices, and published in the Federal Register a proposed revision of SCS policy and procedures for protecting cultural resources. Highlights of the year include discovering a rare prehistoric archeological site in Oregon, cooperating with Iowa State University on a study of post-glacial changes and erosion, and protecting two historic covered bridges.

Recreation

Under the Food and Agriculture Act of 1962, SCS has USDA leadership in helping land users develop recreation resources and serves as liaison with other agencies that assist with recreation development. In 1982, SCS increased its technical assistance to recreation area sponsors in controlling soil erosion on private and public recreation lands.

Rural Clean Water Program

SCS has provided technical assistance in developing 1,016 water quality plans and coordinating water quality monitoring activities for the 21 experimental Rural Clean Water Program projects. ASCS has obligated \$14 million in financial assistance for implementing best management practices on 916 of these plans.

International Activities

In 1982, 98 SCS employees traveled to 40 countries to help solve soil and water conservation problems and improve crop and livestock production. The SCS'ers also learned ways to improve U.S. conservation programs. Of the employees, 27 were soil scientists participating in the Soil Management Support Services project. SCS also hosted 260 representatives from about 45 countries so they could study our conservation programs and carry adaptable methods back to their countries. The Agency for International Development, World Bank, and United Nations funded most of the projects.

Metric Conversion
To assist readers, information in the tables is given in metric and in units of common measure. A hectare is equal to 2.471 acres; a kilometer is equal to 0.6214 mile; a metric ton is equal to 1.1023 U.S. tons.

April 1983

News Briefs

OTA Issues Erosion Report

The Congressional Office of Technology Assessment (OTA) has published its first report on soil erosion and other soil degradation problems, titled "Impacts of Technology on U.S. Cropland and Rangeland Productivity." This OTA report is important because it effectively dramatizes the erosion problem and focuses on Congressional solutions.

The report discusses several other important land productivity problems such as drainage, compaction, salinization, ground water depletion, subsidence, and effects on the environment. But it devotes more space to erosion than the other problems, calling it the "greatest threat to land productivity."

This report is a comprehensive review of land problems and solutions, with extensive data about the condition of the Nation's soil, water, and related resources. But it is packaged in a readable format to serve as a quick reference book for members of Congress and others who are interested in conserving soil. It should lead to legislation that will help the Nation save soil.

Conservation tillage is cited as an example of new, innovative technologies that can save soil and improve profitability for many farmers. OTA predicts that even with conservation tillage, the ability of the Nation to save soil will be strained as marginal land is brought into production. Their report suggests discouraging production of row crops and small grains on land that is too fragile to avoid excessive erosion with cost-effective conservation measures.

The report includes a chapter on why some farmers adopt technologies while their neighbors do not.

It concludes with a list of options for Congress relating to five policy issues: integrating conservation policy with economic policy, improving the effectiveness of Federal conservation programs, enhancing Federal research on technologies that help sustain land productivity, reducing pressure on fragile lands, and encouraging State initiatives.

The OTA report is available for \$8 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (Stock No. 052-003-00884-0.) A free summary of the report is available from OTA, U.S. Congress, Washington, D.C. 20510. Telephone (202) 224-8996.

Donald L. Comis,
assistant editor, *Soil and Water Conservation News*,
SCS, Washington, D.C.

Erosion Control Fabric Beats Hard Rains

The Naval Air Station in Meridian, Miss., is plagued with continuing erosion problems. Rolling terrain, sensitive soils, and periodic storms of violent intensity result in gullies adjacent to runways that may imperil aircraft and crews. Forestry personnel, using special soil and water funds, rehabilitate such areas when they are within the scope of available equipment.

Establishing an erosion-resistant vegetative cover can be a risky gamble against the weather—getting the work done early enough to take advantage of spring rains while avoiding the disastrous "gully-busters."

Some early projects resulted in total loss when hard rains came before the grass was well rooted. It's a frustrating and costly experience to see soil, seed, and fertilizer washing away as a result of inopportune timing of a heavy rain.

This risk has been demonstrably reduced by the application of an erosion control fabric to denuded areas after completion of grading, seeding, and fertilizing. The fabric consists of polypropylene yarn interwoven with strips of biodegradable paper.

The fabric provides immediate protection of the area and prevents movement of seed and soil by impacting raindrops. Each strip of paper acts as a minute channel to aid in carrying surface runoff and acts as a mulch to nurture developing seedlings. Various grades of this fabric disintegrate at

differing intervals but always within one growing season.

The photodegradable synthetic fiber mesh, however, disintegrates more slowly. It has been found to be effectively binding grass roots 3 years after application.

The erosion control fabric is available through the Government Services Administration (GSA) supply system.

W. E. Frazier,
forester, Naval Facilities Engineering Command,
Charleston, S.C.

Reprinted from the Spring 1982 issue of *Navy Civil Engineer*

World Soil Conservation Group Formed

A new association, the World Association of Soil and Water Conservation, has been formed to encourage the wise use and conservation of soil and water resources worldwide. Its members will include scientists, professional conservationists, and policymakers.

Initially, the association will operate under the auspices of the Soil Conservation Society of America (SCSA). SCSA will maintain membership records for the association and publish a newsletter for the group.

In addition to publishing a newsletter, the world association will sponsor a biennial conference, assess soil and water conservation needs in nations throughout the world, work for the adoption of sound soil and water conservation policies, encourage research and demonstration projects on soil and water conservation problems, and work with other worldwide conservation organizations and agencies in support of mutual interests.

Annual dues for the association will be \$10 (payable in U.S. funds). More information about the association is available from SCSA, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021.

Improving Wildlife Habitat

Missouri Inventories Wildlife Habitat

"Why is northeast Missouri a 'hot-spot' for bobwhite quail? How will the continued growth of highly intensive agriculture affect the quail? How will various conservation programs affect their habitat?" These and other questions arose as the Soil Conservation Service in Missouri prepared the 1977 National Resources Inventory (NRI).

SCS, USDA's Forest Service, and other agencies—especially the Missouri Department of Conservation (MDC)—recognized the need for more information on Missouri conditions than would be needed nationally. The NRI is not designed to collect specific information to answer all questions about wildlife habitat on a local basis. Data needs vary so much by resource areas throughout the United States, it would be impossible to design a national inventory system to serve all States and cover all species of wildlife.

SCS and the other agencies decided to develop jointly a State wildlife inventory form that would answer their data needs. The form lists specific habitat characteristics, such as the number of tree cavities per acre. Points are assigned to these characteristics and used to compute habitat quality indexes.

Data for the Missouri supplemental wildlife inventory sheet were collected during the fieldwork for the 1982 NRI, in the same primary sample units; but they will be analyzed separately at the University of Missouri at Columbia. With the university's help, SCS and MDC are developing computer analysis techniques to show existing habitat values and to monitor how species respond to various land management options. The university is also developing computer techniques to display the results in tables and maps.

When this is done, Missouri will have enough information on its wildlife resources to identify habitat conditions that need improvement.

J. Pat Graham,
biologist, SCS, Columbia, Mo.

Edward A. Gaskins,
biologist, SCS, Columbia, Mo

USDA Sets Up Fisheries and Wildlife Group

The U.S. Department of Agriculture's (USDA) Natural Resources and Environment (NRE) Committee has set up an interagency group to help it coordinate departmental activities to support USDA policy on fish and wildlife.

Secretary's Memorandum 9500-3, issued July 20, 1982, states that USDA recognizes the values of fish and wildlife and will improve their habitats where possible as the Department carries out its overall missions.

The Soil Conservation Service and the Agricultural Stabilization and Conservation Service are two of the eleven agencies represented on the fisheries and wildlife group. Representatives of the Forest Service and the Extension Service cochair the group, with the Forest Service providing staff support.

This group is currently reviewing issues in three subject areas: fish and wildlife habitats on private land; threatened or endangered species; and animal damage management. Recommendations for action, if needed, will be made to the NRE Committee.

Donald L. Comis,
assistant editor, *Soil and Water Conservation News*,
SCS, Washington, D.C.

Blasting Homes for Waterfowl

Waterfowl are finding more places to rest, nest, and feed in northeastern Utah's wetlands now that farmers are blasting potholes with a homemade mixture of fertilizer and fuel oil.

Most of the wetlands were formed by drainage from the inefficient irrigation systems that date back to the early 1900's. Wetland plants such as cattails, sedges, and pondweeds have become established and the areas attract various kinds of wildlife. But in many locations, the vegetation on these wetlands becomes so dense that waterfowl and furbearers such as muskrat no longer

use them or are restricted to the more open areas of the wetlands.

The potholes are one way the Soil Conservation Service is promoting wildlife habitat where it can as part of conservation plans for many farmers, including those who are installing new irrigation systems as part of the Colorado River Basin Salinity Control Project. USDA's Agricultural Stabilization and Conservation Service provides 75 percent cost sharing for all the expensive irrigation work, including the relatively minor costs of materials and labor for blasting and fencing the pothole areas. SCS assists with planning the work, in cooperation with the Uintah Basin Soil Conservation District.

Blasting with a fertilizer-oil mixture is the most practical and least expensive way to create open water for wildlife in Utah.

The Utah Division of Natural Resources provides the expertise to do the job safely, along with the fuses, percussion caps, and dynamite needed to detonate the mixture.

Farmer Reed Stanley has blasted 10 potholes, each 6 feet deep by 20 feet wide, on a 10-acre wetland. Six of them are interconnected, forming a large area of open water interspersed with land and vegetation, and the other four are separate potholes. Water flows through the series of interconnected ponds and into a channel outlet which creates even more wetland.

Stanley plans to blast 10 more potholes this year. Besides attracting waterfowl, his wetlands have been enhanced for muskrat and other wildlife, including pheasant, doves, rabbits, mule deer, songbirds, small mammals, reptiles, and amphibians. Stanley may even decide to stock the holes with trout or bass and bluegill.

Stanley, who raises beef cattle as most farmers do in the Uinta Basin, will fence the wetlands and exclude livestock for 3 years to allow wetland vegetation to establish itself in the newly created wetland area. He will then let cattle graze the wetlands only after the nesting season for pheasants, quail, and other

ground-nesting birds ends, in August or September. Such management will help control excessive vegetative growth after the waterfowl have migrated farther south. Stanley will let the cattle graze only 50 percent of the annual growth of the plants. The rest will be left for wild-life nesting cover, escape cover, and food.

SCS biologists have been working with several owners of wetlands in the Uinta Basin, such as Stanley's neighbor, Dale Barratt, and another landowner Curtis Dastrup in Roosevelt. Barratt will blast potholes in a 12-acre wetland and Dastrup has blasted many holes in a 50-acre wetland where he plans to blast more this year.

All of these wetlands are adjacent to irrigated fields of alfalfa, hay, small grains, and corn, which provide additional food and shelter. This complex of habitat types results in diverse and stable wildlife populations.

Paul A. Obert,
biologist, SCS, Roosevelt, Utah

Beverly J. Miller,
public affairs specialist, SCS,
Salt Lake City, Utah

Farmer Carves His Name on the Land

From the ground, the 15 ponds on Oscar Nerhus' farm offer no surprises to the onlooker, other than the abundance of wildlife including sandhill crane, Canada geese, mallards, coots, teal, beaver, whitetail deer, and moose.

But from the sky, it's a whole different story. The ponds spell "Wild-life Nerhus." (Nerhus says he put the hyphen-pond in because it looks nice and gives waterfowl more open water.)

It took "Wild-life Nerhus" 3 years to carve his nickname on an 80-acre peat bog in Pennington County in northwestern Minnesota. Gordon Jelle, a Soil Conservation Service soil conservation technician, was with Nerhus when the inspiration struck to do something more

Although waterfowl can't read, they know that the many ponds of "Wild-life Nerhus" spell food and good breeding and nesting habitat.



than just dig a few ordinary ponds. As a foundation for this idea, Jelle staked out each 50-foot-wide, 300-foot-long letter. "It was a real chore to lay out the letters so they were square with the world," Jelle said.

That was only the initial challenge. Once the letters were staked, Nerhus—a marksman with a dragline—had to dig out the letters. Even with 36 years of experience as a dragline operator, he says the job was bigger than he first realized. He did most of the work in the fall of each year, working until the ground froze. Last fall, he carved the last letters in his name, after working 7 days a week for 6 weeks. The only letters he didn't finish were "O" for Oscar and "M" for Mildred, his wife.

Nerhus had to detour once as he carved the "h" in the springtime, to avoid a pair of nesting sandhill cranes.

The grasses and sedges along the ponds' shorelines have created a haven for the sandhill cranes. Along some of the shoreline, Nerhus has planted gardens with turnips, carrots, and rutabagas for the many whitetail deer that visit and for the herd of moose that lives in the area—and for any of his human neighbors.

The whimsical design of the ponds has a technical basis. SCS Biologist Larry Pollard says, "The odd-shaped

pools create many feet of shoreline, which are attractive to waterfowl during the mating and brooding season." With many pools surrounded by curved shoreline, the ducks and other waterfowl have the privacy that prevents territorial battles.

Al Gustafson, the SCS district conservationist, says SCS designed each pool to be less than 5 feet deep, with gradually sloping sides, to "create a lot of shallow water for ducks and geese to feed off the bottom."

Nerhus grows hay on his 1,100-acre farm to feed 50 beef cows, but his real passion is wildlife. He fences the cattle out of his wildlife mecca since 11 other ponds provide enough water for them. This leaves no doubt about Nerhus' priorities.

Nerhus hasn't seen his creation from an airplane yet, but he knows what it's like at ground level. "I often go out in the early morning and at dusk to hear the music of the geese, cranes, and meadowlarks. I get the feeling that I'm away from everything," he said. "I might sell all the rest of my land, but never this wildlife area."

Kate J. Brady,
public affairs specialist,
SCS, St. Paul, Minn.

Moving?

Send present mailing label and new address including zip code to:

U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 2890, Room 0213-S
Washington, D.C. 20013

Official Business
Penalty for private use, \$300

NATIONAL AGRICULTURAL LIBRARY



1022771956

New Publications

Freshwater Marshes— Ecology and Wildlife Management

by Milton W. Weller

This publication contains general information about marshes and their wildlife, mostly in the upper midwestern United States. While it is not highly technical, the text provides understandable general concepts about marshes and some insight into the problems involved in their preservation. Because recent environmental laws have induced interest in marshes as a wetland type with evaluation and protection rights, the text treats the marsh components separately to enable readers to more fully grasp the marsh as a dynamic ecosystem.

While this is a general text, there is a liberal use and explanation of technical terms and an extensive use of citations to reference texts that treat specific subjects in much greater technical detail.

Freshwater Marshes is intended mainly for laypersons, students, and professionals in fields other than marsh ecology, biology, or wildlife, however, considering the continuing and growing conflict between humans and wetlands, the book should be of value to a varied audience.

Copies are available for \$8.95 from University of Minnesota Press, 2037 University Avenue Southeast, Minneapolis, Minn. 55414.

Review by H. Wayne Everett, program analyst, Planning and Evaluation, SCS, Washington, D.C.

A Small Piece of Land

by David Malcolmson

This book is an account of a ravished farm destroyed by uncontrolled gravel operators and tenants who even baled the bean straw, putting nothing back into the land. Through the years, the author developed this piece of ill-used land and made it into a tree farm as well as a wildlife refuge. Now after 30 years, this same farm produces record crops of corn and soybeans, as well as being a place of great beauty.

The author has written other books for children and adults about life on a farm.

Copies of this 185-page book are available for \$9.95 from Interstate Printers and Publishers, Inc., 19-27 North Jackson Street, Danville, Ill. 61832.

Make Room for Monsters... and Wildlife on the Land

by the Soil Conservation
Society of America

This 16-page cartoon color booklet is designed to teach young people basic principles of wildlife ecology.

In the story, two urban school-children are led by their natural curiosity about wildlife into an exciting learning experience about their own and other environments.

The booklet exposes young readers to various North American ecotypes, and presents ways for youth to better observe and study wildlife in and around their own communities. Young people will also gain ideas for habitat development in both urban and rural areas.

This booklet replaces an earlier booklet on wildlife in a series of 11 educational cartoon booklets published by the Soil

Conservation Society of America (SCSA). The booklets are designed to help young people in the upper elementary grades understand the value of using natural resources wisely. A teacher's guide is available for this and each of the other booklets in the series.

Single copies of "Make Room for Monsters..." are available for 75 cents (teacher's guides are 50 cents), from SCSA, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021. Substantial discounts are available on quantity purchases of both the booklet and teacher's guide.

In-Place Resource Inventories: Principles and Practices

The Society of American Foresters developed this proceedings from a state-of-the-art inventory workshop held in August 1981. The 1,101-page volume contains topical papers by 274 authors who are renewable natural resource professionals and inventory specialists from across the country and around the world. The objective of the workshop and the proceedings was to provide the inventory specialist alternative methods of producing reliable inventory and maps of the resources.

The Soil Conservation Service was one of more than 10 co-sponsors and cooperating agencies for the workshop.

These proceedings gather inventory facts and figures crucial to current resource management. Photographs, line drawings, maps, graphs, and charts are used extensively throughout for illustration and clarification.

Copies of this publication (SAF 82-02), are available for \$30 postpaid, from the Society of American Foresters, 5400 Grosvenor Lane, Bethesda, Md. 20814.

Sources of Native Seeds and Plants

by the Soil Conservation
Society of America

The names and addresses of nearly 300 growers and suppliers of native vegetation in 40 States and Canada are included in this new edition. This represents about twice as many listings as in the previous edition.

The booklet is organized by States and includes an alphabetical listing of native plant sources. Along with addresses, the listing indicates the grower's specialty: wild flower seed and native plants, native grass seed, nursery stock of native trees and shrubs, and/or native tree and shrub seed. More detailed information is given, where necessary, about the sources' specialties and terms of sales.

Copies of the 36-page booklet are available for \$3 (\$2.50 for orders of 10 or more) from the Soil Conservation Society of America, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021.

Recent Soil Surveys Published

by the Soil Conservation Service

Arkansas: Independence County.

Colorado: Rio Blanco County.

Georgia: Liberty and Long Counties.

Idaho: Bonner County.

Indiana: Huntington County.

Kansas: Greenwood County.

Kentucky: Bourbon and Nicholas Counties.

Minnesota: Clay County.

Nebraska: Chase County.

Oregon: Polk County.

South Carolina: Colleton County.

South Dakota: Turner County.

Texas: Willacy County.

Virginia: Rockingham County.

Wisconsin: Shawano County.